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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ramsay Mussen

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EXAMINER

AFZALI, SARANG

ART UNIT

PAPER NUMBER

3726

MAIL DATE

DELIVERY MODE

06/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/775,905

Applicant(s)

MUSSEN, RAMSAY

Examiner

Sarang Afzali

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3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 3/21/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The applicant's amendment filed on 3/5/2007 has been fully considered and made of record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiskes (US 6,394,750) in view of Hellemann et al. (US 6,568,077).

As applied to claims 1 and 2, Hiskes teaches a method of repairing a cast stator vane segment wherein a replacement portion (88, Figs. 6 & 6A) including leg portion (46s), platform portion (38s), airfoil portion (64s) and foot portion (52) of a cast stator vane segment is inserted and secured to the stator vane (34, Fig. 6).

Hiskes teaches the invention cited with the exception of explicitly teaching that the replacement section is tack welded followed by electron beam welding, heat treating, and machining of the replacement section to a suitable shape.

However, Hellemann et al. teach a method for repairing a damaged stator vane segment including the removing of a portion of a stator vane segment (removing damage 18 by milling machine 30, Fig. 2) and securing a replacement section onto the

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stator segment (insert 32b, Fig. 5) by tack welds (col. 8, line 8), electron beam welding (welder 34b, Fig. 5) of the insert to the stator vane, heat treating the replacement section (col. 7, lines 55-58) and followed by machining the repaired section (Abstract, line 3) in order to restore the damaged area to a substantially original, pre-damaged configuration.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided Hiskes with the steps of tack and electron beam welding, heat treating and machining of the repaired section, as taught by Hellemann et al., in order to provide an effective means of repairing and restoring a damaged section of a gas turbine segment into its original configuration.

Note that although Hiskes does not teach removing an inner platform portion, it would have been obvious to one of ordinary skill in the art to have found the method equally as applicable to both inner and outer platform portions in order to provide an effective means of repairing a damaged component of a gas turbine engine.

As applied to claims 5-7, it is inherent that the vane segment is located in a compressor/high pressure section/late stage section because both Hiskes and Hellemann et al. disclose the airfoils for gas turbines.

Response to Arguments

4. Applicant's arguments filed 3/21/2007 have been fully considered but they are not persuasive.

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5. Applicant's amendment of claims 1-16 and canceling of claims 3-4 and 8-16 are acknowledged.

6. Applicant's amendment to the specification is accepted and therefore, the objections to drawings and specification are withdrawn.

7. Applicant argues that "While Hiskes discloses a method of repairing a platform by removing a portion of the platform and joining a replacement section therein, the only joining method disclosed by Hiskes is diffusion bonding, not electron beam welding as claimed by Applicant."

The Applicant further argues that "the only platform repaired in Hiskes is the outer platform, not the inner platform as repaired by Applicant's invention." and that "The outer platform is not a robust structurally supportive attachment structure like the inner platform repaired by Applicant's invention (which will have much more centrifugal force applied to it during operation of the gas turbine engine than the outer platform)."

The Applicant further argues that "the only damage being repaired by Hiskes is damage to the airfoil surface itself, near where the airfoil surface meets the platform, not on any inner platforms like those repaired by Applicant's invention." and therefore, "one would not look to Hiskes (which only repairs non-structurally supportive airfoil surfaces near the outer platforms with diffusion bonding) to discover a solution to repairing a robust structurally supportive attachment structure like the inner platform foot repaired by Applicant's invention."

The Examiner respectfully disagrees with the above arguments. As Applicant agrees, Hiskes teaches a method of repairing a platform by removing a portion of the

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platform and joining a replacement section therein. The Applicant discloses (specification, page 1, paragraph 3 and page 4, paragraph 1) a method for repairing damaged article in inaccessible locations due to extreme temperatures, however, the Examiner submits that there is no patentable difference between the inner platform and the outer platform as the Applicant argues.

Applicant is claiming a method of repairing a cast article comprising of following steps:

removing damaged portion (an inner platform), securing replacement portion using electron beam weld, heat treating the replacement portion, and machining the replacement portion to a suitable shape.

Hiskes teaches the removing and securing portions of an outer platform portion. Hiskes also teaches the actual platform part being replaced, contrary to what Applicant argues that Hiskes only teaches a surface near the platform. Note that Figure 6A of Hiskes shows a replacement portion (88) including leg portion (46s), platform portion (38s), airfoil portion (64s) and foot portion (not labeled). Therefore, Hikes explicitly teaches a platform portion being repaired regardless of being an inner or outer platform.

As for Hellemann et al., the Applicant argues that "Helleman only discusses repairing a blisk, no other gas turbine engine components are even mentioned anywhere" and that "the only repairs being performed by Hellemann are on the airfoil surfaces themselves" and that "the airfoils being repaired by Hellemann are not robust structurally supportive attachment structures."

The Examiner submits that Hellemann is relied on to teach that it is well-known in the art use tack-weld and electron beam welding techniques to secure a replacement part to a turbine engine component followed by heat treating and machining the replaced part.

As for the Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As such the examiner maintains that newly amended claims 1, 2, and 5-7 are rendered obvious by Hiskes et al. in view of Hellemann et al.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

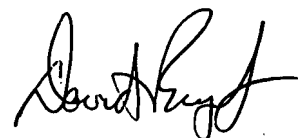
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA

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5/29/2007



DAVID P. BRYANT
SUPERVISORY PATENT EXAMINER

5/31/07